CLAIMS

1. A method for analyzing data, the method comprising:

producing and displaying a scatter plot that contains a plotted point for each of the data;

determining the locations of various sets of one or more boundaries that segment the scatter plot into pluralities of regions that correspond to selection criteria interactively supplied by a user, with one or more of the sets defining at least one region of interest;

recording information related to the data whose plotted points are located in a given region of interest;

selecting one or more plotted points in the given region of interest; and

retrieving and displaying the recorded information corresponding to the one or more selected plotted points.

2. The method of claim 1, wherein the recorded information related to the data whose plotted points are located in the given region of interest is gene information.

3. The method of claim 1, wherein the recorded information related to the data whose plotted points are located in the given region of interest is stored in a computer file or data base.

4. The method of claim 3, wherein the recorded information corresponding to the one or more selected plotted points is retrieved from the computer file or data base.

5. The method of claim 1, wherein at least one boundary in the sets of one or more boundaries is derived based on one of the following:

(i) a specified differential expression ratio calculated as the quotient of a variable associated with an x-axis and a variable associated with a y-axis, or

(ii) a predetermined noise level, or

(iii) statistics of the data, or

(iv) a predetermined number of points are located outside the boundary.

6. A microarray scanning system adapted to acquire fluorescence measurements representative of the extent to which a genetic sample reacts with both a test sample and a control sample, the microarray scanning system comprising:

a fluorescence reader that generates a pair of test-sample and control-sample fluorescence measurements for each of a plurality of genetic samples;

a processor that receives the pairs of test-sample and control-sample fluorescence measurements generated by the fluorescence reader and produces a scatter plot graphing each test-sample fluorescence measurement against its corresponding control-sample fluorescence measurement;

a data input device that interactively receives selection criteria from a user and forwards the user-specified selection criteria to the processor, wherein the processor is configured to process the user-specified selection criteria to determine locations of various sets of one or more boundaries in the scatter plot; and

a display unit that displays the scatter plot and superimposes the sets of one or more boundaries over the displayed scatter plot.

7. A method for displaying data on a display unit, the method comprising:

plotting the data as pairs of x-coordinates and y-coordinates in an orthogonal coordinate system to generate a scatter plot that is displayed on the display unit;

determining the location of a first set of one or more boundaries in the orthogonal coordinate system based on a first set of selection criteria interactively provided by a user, with at least one boundary in the first set of one or more boundaries defining a first region of interest in the orthogonal coordinate system;

superimposing the first set of one or more boundaries over the scatter plot displayed on the display unit;

changing the visual properties of pairs of x-coordinates and y-coordinates displayed by the display unit in the first region of interest;

determining the location of a second set of one or more boundaries in the orthogonal coordinate system based on a second set of selection criteria interactively provided by a user, with at least one boundary in the second set of one or more boundaries defining a second region of interest in the orthogonal coordinate system;

removing the first set of one or more boundaries from the scatter plot displayed on the display unit and returning the visual properties of pairs of x-coordinates and y-coordinates in the first region of interest to their original visual properties;

superimposing the second set of one or more boundaries over the scatter plot displayed by the display unit; and

changing the visual properties of pairs of x-coordinates and y-coordinates displayed by the display unit in the second region of interest.

8. The method of claim 7, wherein the first and second regions of interest are the same region displayed on the display unit.

9. The method of claim 7, wherein pairs of x-coordinates and y-coordinates located in the first and second regions of interest are displayed by the display unit using a different color than pairs of x-coordinates and y-coordinates located outside the respective first and second regions of interest.

10. The method of claim 7, wherein pairs of x-coordinates and y-coordinates located in the first and second regions of interest are displayed by the display unit using a different intensity than pairs of x-coordinates and y-coordinates located outside the respective first and second regions of interest.

11. The method of claim 7, wherein pairs of x-coordinates and y-coordinates located in the first and second regions of interest are displayed by the display unit using a different background color than pairs of x-coordinates and y-coordinates located outside the respective first and second regions of interest.

12. A display device adapted to display data, the display device comprising:

means for plotting the data as pairs of x-coordinates and y-coordinates in an orthogonal coordinate system to generate a scatter plot that is displayed on the display unit;

means for determining the location of a first set of one or more boundaries in the orthogonal coordinate system based on a first set of selection criteria interactively pro-

vided by a user, with at least one boundary in the first set of one or more boundaries defining a first region of interest in the orthogonal coordinate system;

means for superimposing the first set of one or more boundaries over the scatter plot displayed on the display device;

means for changing the visual properties of pairs of x-coordinates and y-coordinates displayed by the display device in the first region of interest;

means for determining the location of a second set of one or more boundaries in the orthogonal coordinate system based on a second set of selection criteria interactively provided by a user, with at least one boundary in the second set of one or more boundaries defining a second region of interest in the orthogonal coordinate system;

means for removing the first set of one or more boundaries from the scatter plot displayed on the display device and returning the visual properties of pairs of x-coordinates and y-coordinates in the first region of interest to their original visual properties;

means for superimposing the second set of one or more boundaries over the scatter plot displayed by the display device; and

means for changing the visual properties of pairs of x-coordinates and y-coordinates displayed by the display device in the second region of interest.

13. A computer-readable medium having instructions for execution on a processor, said instructions for a method for analyzing data, the method comprising:

producing and displaying a scatter plot that contains a plotted point for each of the data;

determining the locations of various sets of one or more boundaries that segment the scatter plot into pluralities of regions that correspond to user specified selection criteria, with one or more sets including at least one region of interest;

recording information related to the data whose plotted points are located in a given region of interest;

selecting one or more plotted points in the given region of interest; and

retrieving and displaying the recorded information corresponding to the one or more selected plotted points.

14. The computer-readable medium of claim 13 wherein said instructions further include, in the step of recording information, storing the information in a data file or data base.